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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/583,177	05/30/2000	Bijendra N Jain	M-7915US	5355

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EXAMINER	
LAFORGIA, CHRISTIAN A	

ART UNIT	PAPER NUMBER
2131	9

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/583,177	JAIN ET AL.	
	Examiner	Art Unit	
	Christian La Forgia	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-59* is/are pending in the application.

4a) Of the above claim(s) *1-26,31,37,44 and 50* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27-30,32-36,38-43,45-49 and 51-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 May 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The amendment filed on 22 July 2003 is noted and made of record.

2. Claims 1 through 59 are presented for examination.

3. Claims 1 through 26, 31, 37, 44, and 50 are cancelled as per Applicant's request.

Drawings

4. Applicant is reminded that the Patent and Trademark Office no longer makes drawing changes and that it is applicant's responsibility to ensure that the drawings are corrected in accordance with the instructions set forth in Paper No. 03, mailed on 18 March 2003.

Response to Arguments

5. Applicant's arguments with respect to claims 27 through 59 have been considered but are moot in view of the new ground(s) of rejection.

6. See further rejections that follow.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 27 through 30, 32 through 36, 38 through 43, 45 through 49, and 51 through 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 6,195,553 to Claffery et al., hereinafter Claffery, in lieu of obviousness.

9. As per claims 27 , 40, and 53, Claffery teaches a computer system comprising:

a processor (column 5, lines 23-35);

a network interface, coupled to the processor and to a network, wherein the network comprises a plurality of network elements and each one of the network elements is coupled to at

least one other of the network elements by at least one of a plurality of links (column 5, lines 40-58);

computer readable medium coupled to the processor (column 5, lines 23-35);

computer code, encoded in the computer readable medium, configured to cause the processor to:

identify pairs of the network elements as being in a first set of network element pairs (column 5, lines 49-61);

generate a first matrix from the first set of network element pairs (Figure 1 [block 10]; column 5, line 58 to column 6, line 15; column 8, lines 15-20), wherein

each row in the first matrix corresponds to a corresponding network element pair in the first set of network element pairs (Figure 1 [block 10]; column 5, line 58 to column 6, line 15; column 8, lines 15-20), and

the first matrix comprises independent rows and non independent rows (column 8, lines 15-20);

form a second set of network element pairs (Figure 1 [block 16]; column 6, lines 22-54), wherein

the second set of network element pairs contains independent network element pairs in the first set of network element pairs (column 8, lines 26-33), and

each one of the independent pairs of network element corresponds to a one of the independent rows of the first matrix (column 8, lines 15-20; column 8, lines 26-33);

measure a measured network performance metric between a first network element and a second network element of each network element pair in the second set of network element pairs (column 6, lines 22-29); and

compute a computed network performance metric between a first network element and a second network element of a remaining network element pair in the first set of network element pairs using at least one of the measured network performance metrics, wherein the remaining network element pair corresponds to a non-independent row of the first matrix (Figure 1 [block 18]; column 8, line 43 to column 9, line 16). Wherein the independent and non- independent rows are similar to the connections "Always" and "Never" as described by Claffery. It would have been obvious to one of ordinary skill in the art to measure a network performance metric between network elements. One would be motivated to perform this function as it would provide for better efficiency and better accuracy (see Claffery: column 6, lines 22-48). It would have been obvious to one of ordinary skill in the art to associate the independent and non-independent rows of the instant application with the "Always"/"Never" connections. One of ordinary skill in the art would recognize those connections as the adjacent connections to the immediate node, therefore always being connected independent of the weights of other links. It would still be further obvious to one of ordinary skill to incorporate the always/independent connections into a second group of network element pairs. One would be motivated to build this second group of network elements as it provides for a method to calculate the total cost between a pair of network elements. For instance, one would like to route data between nodes A and B, but there is no direct connection between A and B and instead the data must be first be routed through C to get to B. Therefore the first group of network elements features the independent row showing the

connection between C and B and the non-independent connection between A and C, while the second group of network element pairs provides for the independent connection between C and B.

10. Regarding claims 28 and 41, Claffery teaches wherein the first set of network element pairs is a requirements set (Figure 1 [block 10]; column 5, line 58 to column 6, line 16; column 8, lines 15-20).

11. With regards to claims 29 and 42, Claffery teaches wherein the second set of network element pairs is a measurements set (Figure 1 [block 16]; column 6, lines 22-29).

12. Concerning claims 30, 39, 43, and 52, Claffery teaches wherein each one of the network elements is a router (column 5, lines 40-58).

13. Regarding claims 32, 45, and 54, Claffery teaches wherein the computer code is further configured to cause the processor to:

compute a number, wherein the number is equal to a rank of the first matrix (column 4, lines 31-44);

determine if a first the number of rows of the first matrix are independent (Figure 1 [block 12]; column 4, lines 31-44; column 8, lines 21-25); and

if the first the number of the rows of the first matrix are not independent, re-arrange the rows of the first matrix such that the first the number of the rows of the first matrix are

independent (Figure 1 [block 12]; column 4, lines 31-44; column 8, lines 21-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to compute a number that is equaled to the rank of the first matrix. One of ordinary skill in the art would be motivated to rank the matrices as it serves as a way to rank those network elements which provide a connection between the source and destination nodes while eliminating those matrices that do not provide a path between the source and destination nodes.

14. Concerning claims 33, 46, and 55, Claffery teaches wherein the computer code is further configured to cause the processor to:

identify a maximal set of independent rows of the first matrix based on the number (Figure 1 [block 12]; column 4, lines 31-44; column 8, lines 21-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to compute a number that is equaled to the rank of the first matrix. One of ordinary skill in the art would be motivated to rank the matrices as it serves as a way to rank those network elements which provide a connection between the source and destination nodes while eliminating those matrices that do not provide a path between the source and destination nodes.

15. With regards to claims 34, 47, and 56, Claffery teaches wherein the computer code configured to cause the processor to re-arrange the rows of the first matrix such that the first the number of the rows of the first matrix are independent, if the first the number of the rows of the first matrix are not independent, is further configured to cause the processor to:

re-arrange the pairs of the network elements in the first set of network element pairs such that the correspondence between each row of the first matrix and the corresponding network element pair in the first set of network element pairs is maintained (Figure 1 [block 12]; column 4, lines 31-44; column 8, lines 21-25).

16. Regarding claims 35, 48, and 57, Claffery teaches wherein the computer code configured to cause the processor to form the second set of network element pairs is configured to cause the processor to:

copy a first the number of pairs of the network elements in the first set of network element pairs into the second set of network element pairs (column 6, lines 22-29).

17. Regarding claims 36, 49, and 58, Claffery teaches wherein the computer code configured to cause the processor to compute the computed network performance metric between the first network element and the second network element of the remaining network element pair is configured to cause the processor to:

form a second matrix (Figure 1 [block 16]; column 6, lines 22-29; column 8, lines 26-33), wherein

each row of the second matrix corresponds to a corresponding one of the non-independent rows of the first matrix (column 8, lines 26-33), and

the each row of the second matrix is such that the corresponding one of the non-independent rows of the first matrix can be expressed in terms of the independent rows using the each row of the second matrix (column 8, lines 26-33);

organize the measured network performance metrics into a vector (Figures 1 [block 18], 2; column 8, line 43 to column 9, line 16); and

compute the computed network performance metric between the first network element and the second network element of the remaining network element pair by multiplying the vector by a row of the second matrix corresponding to the remaining network element pair (Figures 1 [block 18], 2; column 8, line 43 to column 9, line 16; column 9, lines 22-53).

18. Regarding claims 38, 51, and 59, Claffery teaches wherein the computer code configured to cause the processor to compute the computed network performance metric between the first network element and the second network element of the remaining network element pair is further configured to configured to cause the processor to:

create a vector equivalent to the non-independent row of the first matrix by combining a plurality of the independent rows of the first matrix (Figures 1 [block 18], 2; column 8, line 43 to column 9, line 16; column 9, lines 22-53); and

compute the computed network performance metric by combining a measured network performance metric of each network element pair of the second set of network element pairs corresponding to one of the plurality of the independent rows of the first matrix (Figures 1 [block 18], 2; column 8, line 43 to column 9, line 16; column 9, lines 22-53).

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian La Forgia whose telephone number is (703) 305-7704. The examiner can normally be reached on Monday thru Thursday 7-5.

20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (703) 305-9648. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

21. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Christian LaForgia
Patent Examiner
Art Unit 2131

clf

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